

What is claimed is:

1. A display device forming a display region where a plurality of films including an insulation film, a semiconductor film and a conductive film are patterned in a given pattern
5 and stacked on a substrate, wherein

at a point of time that at least one correction portion out of a correction portion which separates a short-circuit defect, a correction portion which connects an opening defect, a correction portion which removes a standard deviation defect,
10 and a correction portion which separates a standard deviation defect of the pattern is corrected, at least one upper-layer film is present above a film to be corrected at the correction portion and the correction is applied to the film to be corrected while leaving the upper-layer film as it is.

15 2. A display device according to claim 1, wherein the correction of the correction portion is performed by the irradiation of laser beams.

3. A display device according to claim 2, wherein the correction of the correction portion is performed by irradiating
20 the laser beams from a side opposite to the substrate.

4. A display device according to claim 2, wherein the laser beams are irradiated to the same portion by dividing the laser beams plural times.

5. A display device according to claim 1, wherein the
25 upper-layer film above the film to be corrected includes at

least either one of an insulation film and a transparent conductive film.

6. A display device according to claim 1, wherein a display of the display region is performed normally due to the correction
5 of the correcting portions.

7. A manufacturing method of a display device comprising:
a film forming step in which a plurality of films including an insulation film, a semiconductor film and a conductive film are stacked onto a substrate; and

10 a defect portion correcting step in which at least one correction out of a short-circuit defect portion separation correction which separates a short-circuit defect, an open defect portion connection correction which performs a connection of an open defect, a standard deviation defect portion
15 removal correction which performs a removal of a standard deviation defect, and a standard deviation defect portion separation correction which performs a separation of a standard deviation defect portion generated in the formed film is performed, wherein

20 at a point of correction time of the defect portion correction step, at least one upper-layer film is present above a film to be corrected at the correction portion and the correction is applied to the film to be corrected while leaving the upper-layer film as it is.

25 8. A manufacturing method of a display device according

to claim 7, wherein the correction is performed by irradiating laser beams.

9. A manufacturing method of a display device according to claim 8, wherein the laser beams are irradiated to the 5 substrate from a side opposite to the substrate.

10. A manufacturing method of a display device according to claim 8, wherein the laser beams are irradiated to the same portion by dividing the laser beams plural times.

11. A manufacturing method of a display device according 10 to claim 10, wherein the laser beams are irradiated to the same portion by dividing the laser beams at least 10 times.

12. A manufacturing method of a display device according to claim 10, wherein an irradiation interval of the laser beams is equal to or more than 0.3 seconds.

15 13. A manufacturing method of a display device according to claim 8, wherein a wavelength of the laser beams is set to a wavelength which allows the laser beams to be more easily absorbed in the film to be corrected than the upper-layer film.

14. A manufacturing method of a display device according 20 to claim 8, wherein when the film to be corrected is an amorphous silicon semiconductor film, a wavelength of the laser beams is set to 250nm to 360nm.

15. A manufacturing method of a display device according to claim 8, wherein an output of the laser beams is set to 0.02W/cm² 25 or less.

16. A manufacturing method of a display device according to claim 15, wherein the laser beams to be irradiated to the same portion are irradiated by dividing the laser beams 10 or more times.

5 17. A manufacturing method of a display device according to claim 7, wherein the upper-layer film includes at least either one of an insulation film and a transparent conductive film.

10 18. A manufacturing method of a display device according to claim 7, wherein the semiconductor film is an amorphous semiconductor film and the amorphous semiconductor film is subjected to the separation correction or the removal correction.

15 19. A manufacturing method of a display device according to claim 7, wherein an activated layer of a thin film transistor which has a source electrode and a drain electrode is constituted by the semiconductor film, the semiconductor film includes an intrinsic semiconductor film and a contact film formed over the intrinsic semiconductor film, wherein the separation correction of a defect which short-circuits the source electrode and the drain electrode through the contact film is performed by removing the contact film present between the source electrode and the drain electrode together with a portion of the intrinsic semiconductor film.

20 20. A manufacturing method of a display device according to claim 7, wherein the conductive film is at least one of a

scanning signal line, a video signal line and a pixel electrode,
and the separation correction is at least one of corrections
of a short-circuit defect between the scanning signal lines,
a short-circuit defect between the video signal lines and a
5 short-circuit defect between the pixel electrodes.

21. A manufacturing method of a display device according
to claim 20, wherein the pixel electrode is a transparent
conductive film.

22. A manufacturing method of a display device according
10 to claim 7, wherein a normal display is performed by the
correction.